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10/676,656	10/01/2003	Ronald S. Cok	87021THC	8977

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EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1772	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,656	COK, RONALD S.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *25-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/03/04* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Pre-Appeal Request for Review

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

Withdrawn Rejections

2. Applicant's arguments, see pre-appeal brief request for review, filed 10/21/05, with respect to claims 1-14, 16, 18-24 have been fully considered and are persuasive. The 35 U.S.C. 103(a) rejections are withdrawn.

New Rejections

Claim Rejections - 35 USC § 112

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear how the conductive color filter in independent claim 1 can comprise a layer of carbon nanotubules covered by a layer of colored polymeric resin binder, and be further defined in dependent claim 22 as a single layer having a thickness. The claim is rejected below assuming that Applicant had meant to amend it to read that the conductive filter

is conductive through the thickness of the resultant film which is multilayered as amended in independent claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 5-6, 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Glatkowski (WO 02/076724 A1).

Regarding claim 1, Glatkowski teaches a filter (page 14, lines 23-24), comprising a layer of nanotubules covered by a layer of polymeric resin binder (material, page 13, lines 16-17). The nanotubules are carbon nanotubules which form a conductive film (page 9, lines 1-7), and the polymeric resin binder is colored (coloring agent, page 15, lines 5-6), providing a conductive color filter.

Regarding claims 5-6, Glatkowski teaches one embodiment in which the conductive color filter has an electrically conductive side and an electrically insulating side formed by a sufficiently thick layer of polymeric resin binder

(thicker layer of resin, the resulting film has a conductive surface without conductivity through the thickness, page 36, lines 1-5).

Regarding claim 22, Glatkowski teaches another embodiment in which the conductive color filter is conductive through the thickness of the resultant film (coated with a thin binder while still remaining conductive, page 36, lines 19-20).

Claim Rejections - 35 USC § 103

5. Claims 3, 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski as applied to claims 1, 5-6, 22 above

Glatkowski teaches a conductive color filter, comprising a layer of carbon nanotubules covered by a layer of colored polymeric resin binder, as described above. In addition, Glatkowski teaches that a layer of indium tin oxide (page 13, lines 20-25), which is a transparent conductive electrode as defined by Applicant (original claim 7), can be laminated with the conductive color filter (page 13, lines 20-25), and that the laminate has alternating layers of nanotube-containing and non-nanotube containing layers (page 14, lines 1-2). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a transparent conductive electrode on the layer of carbon nanotubules, on the side opposite to the layer of colored polymeric resin binder, so that the transparent conductive indium tin oxide electrode is in electrical contact with the conductive color filter of Glatkowski, in order to provide a preferred order of layers in the laminate, as taught by Glatkowski. Whether the

transparent conductive electrode is deposited upon the conductive color filter, or vice-versa, is immaterial as long as the same end-product is obtained.

6. Claims 2, 4, 10, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski as applied to claims 1, 3, 5-9, 22 above, and further in view of Ohtsu (US 6,436,591).

Glatkowski teaches a conductive color filter, comprising a layer of carbon nanotubules covered by a layer of colored polymeric resin binder, as described above.

Regarding claims 2, 20, Glatkowski fails to teach the colors of the conductive color filter, let alone that the polymeric resin binder contains carbon black.

Ohtsu teaches a conductive color filter (column 7, lines 20-30), which can be black (column 8, lines 1-5), red, green and blue (column 6, lines 60-65), wherein the polymer resin binder contains carbon black for the black color filter (matrix, column 8, lines 1-5).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have given a red, green, blue, or black color, to the conductive color filter of Glatkowski, in order to provide the desired color-filtering function, wherein the black color is provided by carbon black, as taught by Ohtsu.

Regarding claim 4, Glatkowski teaches that a transparent conductive indium tin oxide electrode is in electrical contact with the conductive filter, as

discussed above, but fails to teach that the transparent conductive electrode can also be a thin metal layer.

Ohtsu teaches metals which are equivalent to indium tin oxide in the function of a conductive light-transmitting material for a conductive thin layer (film, column 16, lines 64-67). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a thin metal layer as the transparent conductive electrode, in place of the transparent conductive indium tin oxide electrode of Glatkowski, in order to take advantage of the physical properties provided by the thin metal layer, as taught by Ohtsu.

Regarding claim 10, Glatkowski fails to teach that the conductive color filter is in electrical contact with a reflective conductor.

Ohtsu teaches that the counter electrode 11 is a platinum electrode (column 27, lines 64-66) in electrical contact with the ITO thin film 6 (column 27, lines 50-55) contacting light-transmitting conductive layer 7 (Fig. 4B of Ohtsu on previous page), and is therefore in electrical contact with the conductive color filter. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a reflective conductor, as the counter electrode which is in electrical contact with the transparent conductive indium tin oxide electrode contacting the conductive color filter of Glatkowski in view of Ohtsu, in order to provide the desired electrical connection for the desired end-use.

7. Claims 11-13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski as applied to claims 1, 3, 5-9, 22 above, and further in view of Ohtsu (US 6,436,591) and Chung (US 6,426,590).

Glatkowski teaches a conductive color filter, comprising a layer of carbon nanotubules covered by a layer of colored polymeric resin binder, as described above.

Regarding claims 11, 19, Glatkowski fails to teach that the conductive color filter is used in a flat-panel color display, let alone a flat panel color display which is an LCD display.

Ohtsu teaches that the conductive color filter is employed in a color display such as a liquid crystal display (column 1, lines 7-12). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the conductive color filter of Glatkowski in a color LCD display, as taught by Ohtsu.

Glatkowski in view of Ohtsu fails to teach that the color LCD display is a flat-panel color display.

Chung teaches that flat panel color display devices are widely used (column 2, lines 49-55) and provides improved resolution over traditional liquid crystal displays (column 2, lines 49-59). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used the conductive color filter of Ohtsu in view of Ohtsu, in a flat-panel color display, and hence a flat-panel LCD color display instead of a traditional liquid crystal display, in order to provide improved resolution, as taught by Chung.

Regarding claims 12-13, Glatkowski fails to teach that the black conductive color filter is located in a non-emissive area of the flat-panel color display to form a black matrix, and that the red, green or blue conductive filter is located over a light emitting element of the display.

Ohtsu teaches that the conductive color filter is formed on a light-emitting substrate (column 5, lines 1-5). Therefore the red, green or blue color conductive filter of Glatkowski in view of Ohtsu is located over a light-emitting element of the display. Ohtsu teaches that the color is black to form a black matrix (column 8, lines 1-5). The color black inherently absorbs light, and therefore the black color conductive filter of Glatkowski in view of Ohtsu is located in a non-emissive area of the display.

8. Claims 14-15, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski in view of Ohtsu and Chung, as applied to claims 11-13, 19 above, and further in view of Jones (US 5,672,938).

Glatkowski in view of Ohtsu and Chung, teaches a flat-panel OLED display comprising a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, as described above. In addition, Chung teaches that emission displays have higher contrast ratio, larger viewing angle, higher maximum brightness, lower power consumption and a wider operating temperature range when compared to a conventional liquid crystal display (column 3, lines 1-10).

Regarding claim 14, Glatkowski in view of Ohtsu and Chung fails to disclose an organic light emission display device (OLED).

Jones teaches the use of electron injection into light emissive/organic materials to enhance the concentration of charge carriers in the organic material, and thereby enhance the brightness and hence illumination efficiency of the organic material (column 1, lines 50-60), and that this can be used in organic light emission devices (electroluminescent lamps), field emission (emitter) devices and liquid crystal displays (technologies) (abstract), especially OLEDs (organic light emissive material-based devices) (column 1, lines 40-50). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used an OLED (organic light emission device) taught by Jones, in place of the liquid crystal display device of Glatkowski in view of Ohtsu and Chung, in order to obtain a display with enhanced illumination efficiency, as taught by Jones.

9. Regarding claims 15, 17, Ohtsu teaches that the conductive component of the conductive color filter is used as a drive electrode for the display (light-transmitting conductive film as a component of the color filter, column 2, lines 57-59). An electrode functions as either an anode or a cathode to complete a circuit. Therefore the conductive color filter in the OLED flat-panel color display of Glatkowski in view of Ohtsu, Chung and Jones, is an anode or a cathode in order to drive the display, as taught by Ohtsu.

10. Claims 16, 18, 21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski in view of Ohtsu, Chung and Jones, as applied to claim 14 above, and further in view of Boroson (US 6,226,890).

Glatkowski in view of Ohtsu, Chung and Jones, teaches a an OLED flat-panel display comprising a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, as described above.

Regarding claims 16, 18, Glatkowski in view of Ohtsu, Chung and Jones, fails to teach that the OLED flat-panel color display is bottom emitting or top emitting.

Boroson teaches two embodiments of an OLED display, a bottom-emitting one 9 in Fig. 2 (described in column 5, lines 60-65) (claim 16) and a top-emitting one in Fig. 3A (inverted position described in column 5, lines 65-67) (claim 18), demonstrating that it is a matter of design choice for the desired end-use. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided the OLED flat-panel color display of Glatkowski in view of Ohtsu, Chung and Jones, as either a bottom-emitting or top-emitting OLED, for the desired end-use, as taught by Boronson.

Regarding claims 21, 23, Glatkowski in view of Ohtsu, Chung and Jones, fails to teach that the OLED flat-panel color display further comprises a dessicant dispersed in the polymeric resin binder, which would effectively provide a protective layer for the OLED.

Boroson teaches that a dessicant is required to prevent premature degradation of device performance (column 1, lines 13-23) in organic light-emitting devices (OLED) (column 1, lines 23-33). Boroson teaches that a device with an organic color filter overlay is subject to restrictions (column 2, lines 15-20)

regarding the use of certain solvents to apply the dessicant to the organic-based devices (column 2, lines 1-10). Thus Boroson teaches that the dessicant is applied to an organic color filter overlay. Therefore it would have been obvious to one ordinary skill in the art at the time the invention was made, to have dispersed a dessicant in the organic polymeric resin binder of the conductive color filter in the OLED of Glatkowski in view of Ohtsu, Chung and Jones, in order to prevent premature degradation of the conductive color filter and overall device performance, as taught by Boroson.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Glatkowski in view of Ohtsu, Chung and Jones, as applied to claim 14 above, and further in view of Yamada (US 5,583,675).

Glatkowski in view of Ohtsu, Chung and Jones, teaches a an OLED flat-panel display comprising a conductive color filter, comprising a layer of carbon nanotubes covered by a layer of colored polymeric resin binder, as described above. Glatkowski in view of Ohtsu, Chung and Jones, fails to teach an ultraviolet filter material dispersed in the polymeric resin binder.

Yamada teaches that color filters are directly exposed to ultraviolet rays, and that the color may be undesirably changed by the ultraviolet rays. Yamada teaches that this is avoided by adding an ultraviolet absorber, which functions as an ultraviolet filter material, to the color filter (column 14, lines 40-50). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have dispersed the ultraviolet filter material in the polymeric resin binder of the conductive filter of Glatkowski in view of Ohtsu,

Chung and Jones, in order to obtain a conductive color filter with the desired ultraviolet protection, as taught by Yamada.

Response to Arguments

12. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon.
Sow-Fun Hon
11/21/05

HAROLD PYON
SUPERVISORY PATENT EXAMINER
11/28/05